CERTIFICATE

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THE UNITED STATES OF AMERICA
Legally Binding Document

By the Authority Vested By Part 5 of the United States Code § 552(a) and Part 1 of the Code of Regulations § 51 the attached document has been duly INCORPORATED BY REFERENCE and shall be considered legally binding upon all citizens and residents of the United States of America. ***HEED THIS NOTICE***: Criminal penalties may apply for noncompliance.

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Document Name: IAPMO PS-23: Material and Property Standard for Dishwasher Drain Airgaps

CFR Section(s): 24 CFR 3280.604(b)(2)

Standards Body: International Association of Plumbing and Mechanical Officials

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INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS

MATERIAL AND PROPERTY STANDARD

FOR

DISHWASHER DRAIN AIRGAPS

IAPMO PS 23-89

1. PURPOSE

1.1 The purpose of this Standard is to establish a generally acceptable quality standard for dishwasher drain airgaps. Its purpose is to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors, and users; to promote understanding regarding materials, manufacture and installation; and to provide for identifying drain airgaps that conform to this Standard.

The provisions of the Standard are not intended to prevent the use of any alternate material or method, provided such alternate meets the intent of this Standard.

2. SCOPE

2.1 This Standard covers flow characteristics, dimensions, cleanability, backflow and other significant properties of construction, provisions for proper installation of the finished product, together with methods of marking and identification.

2.2 The dishwasher drain airgaps covered by this Standard are intended for use with ordinary domestic type automatic dishwashers connected to the sanitary waste system.

3. GENERAL REQUIREMENTS

3.1 Materials shall be suitable for this use and compatible with dishwasher detergents and soaps.

3.1.1 Metals shall be of approved corrosion resistant types conforming to nationally recognized standards.

3.1.2 Plastics shall be capable of withstanding temperatures of 180°F and detergents normally used in domestic dishwashing equipment.

3.2 Dishwasher drain airgaps shall prevent backflow of waste water.

3.3 Workmanship and finish. Dishwasher drain airgaps shall be free of defects, burrs or blemishes which would affect appearance or serviceability.

4. DETAIL REQUIREMENTS

4.1 Water passages shall pass a 3/8" steel ball as outlined in Paragraph 5.1.

4.2 Dishwasher drain airgaps shall be constructed so that the water passages may be cleaned from above the deck level.

4.3 Hose connections. Inlet connection shall be sized to fit nominal 5/8" (15.9 mm) ID hose. Outlet connection shall be sized to fit nominal 7/8" (22.2 mm) ID hose.

4.4 Dishwasher drain airgaps and relief openings shall be constructed to prevent the backflow of liquid waste when be installed with the critical level at/or above the flood level rim of the fixture. Critical level shall be established by testing as outlined in 5.3.

4.5 The drain airgap shall be capable of passing a minimum of 5 GPM at 5 psi pressure difference from inlet to outlet.

4.6 Any hose extending beyond the confines of the dishwasher cabinet shall conform to SAE-20 R4 Class R Grade IA for braided cloth heat resistant hose or AHAM Standard DW-1. For a particular size not specified in the Standard, the requirements may be extrapolated to arrive at the necessary value.

4.6.1 Clamps for connecting the hose to the dishwasher drain airgap and the drainage connection may be conventional snap ring type, a worm driven stainless steel band, or other conventional type of equally corrosion resistant materials.

5. TESTING REQUIREMENTS

5.1 The 3/8" steel ball shall be inserted at the inlet connection and propelled by its own weight shall pass completely through the unit and shall exit completely from the discharge connection.

5.2 The dishwasher drain airgap shall be subjected to the flows and pressures as outlined in Paragraph 4.5 with gauges installed on the inlet and shall be capable of meeting all flow requirements. No spillage will be allowed. Clear water shall be used in the testing.

5.3 The critical level (CL or C/L) shall be determined by mounting the dishwasher drain airgap in the bottom of the tank. A length of tubing, long enough to create a 42" vertical drop measured from the airgap opening, shall be connected to the drain inlet and extended below the tank and capped. The drain airgap outlet shall be connected back to the bottom of the tank. The tank shall be filled with clear water to a level of at least 3" higher than the cover cap of the dishwasher drain airgap. Remove the cap from the vertical tubing on the inlet, allowing the water to drain from the tank. The point to which the water recedes shall be deemed the critical level.

5.4 Testing for heat distortion shall be done as follows: A 3/8" x 4" x 4" cast iron plate shall be drilled to receive the dishwasher drain airgap. The nut shall be tightened to 20 inch pounds. The entire unit shall be submerged in water 200° ± 2°F for two (2) minutes, then alternating in water 40° ± 2°F for two (2) minutes. Repeat this cycle 15 times. No cracking, crazing or distortion shall be allowed.

5.5 Test for resistance to detergents by submerging the entire unit, as mounted in Paragraph 5.4, for 24 hours in a 200° ± 2°F solution of 15 grams of tri-sodium phosphate or soda ash dissolved in one liter of distilled water; 15 grams per liter is equal to 1/2 ounce per quart. There shall be no cracking, crazing or deformation visible.

6. IDENTIFICATION AND MARKING

6.1 The following minimum markings shall be permanently and legibly stamped or similarly marked into the unit so as to be visible after installation:

(a) Manufacturer's name and/or trademark
(b) Part number and/or identification number
(c) Flood level (FL or F/L) which shall indicate the position of the dishwasher drain airgap in relation to the flood level of the receptacle, as determined by Paragraph 5.3, shall be placed on the cover cap. The flood level shall be 1/4" minimum below the critical level as determined by the test according to 5.3.

6.1.1 Hose shall be marked at least every 12" with the dishwasher manufacturer's or hose manufacturer's name, trademark or identification symbol. It shall also be marked with the Standard numbers SAE 20 R-4 or AHAM DW-1*, whichever is applicable.

Ratified by Membership: 1966
Revised: 1968, 1979, 1981, 1989

* AHAM - Association of Home Appliance Manufacturers
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